

REMARKS

The Examiner's attention to the present application is noted with appreciation. Claims 1, 18 and 21 have been amended and claims 2 and 9 have been canceled.

In the first section of the Office Action dated March 19, 2007, the Examiner objected to claims 1-8 and 10-17 because claim 1 could be interpreted as being a preferred embodiment and not necessarily a required limitation. Claim 1 has been amended to clarify the limitation to read (in the pertinent part) "wherein said compositions comprise non-adducted metal hydrides and metals with interstitial hydrogen; and..." Because claims 3-8 and 10-17 depend from claim 1, the objection has been overcome.

The Examiner rejected claims 1-8 and 10-21 under 35 U.S.C § 112 stating that there was no basis for the limitation of "non-adducted" metal hydrides. Applicant respectfully disagrees. That Applicant's invention is directed to non-adducted metal hydrides is inherent in the disclosure and figures, particularly Fig. 4, page 4 lines 22-23, and page 5, lines 20-25, and one of ordinary skill in the art would so read and understand the disclosure. The disclosure specifically states that "the invention is capable of doing work by the liberation of a gaseous reaction product, such as hydrogen." (see page 4, lines 22-23). A non-adducted metal hydride is one that uses a process including but not limited to desorption, where the hydrogen is released, rather than through an addition reaction (adduction reaction). Or again on page 5, lines 21-22 specifically read "Upon initiation of the thermite reaction, for example, the hydrogen will be released as a hot gas." Therefore, one of ordinary skill in the art would understand that the metal hydrides used would be non-adducted metal hydrides. Therefore, the independent claims as amended are definite and do not claim new matter. Claims 3 through 8, 10 through

17 depend on claim 1, and claims 19 and 20 depend on claim 18. Therefore, claims 1, 3-8 and 10-21 are now in condition for allowance.

The Examiner provisionally rejected claims 1-21 on the ground of nonstatutory obviousness-type double patenting over claims 14 and 5-8 of Sheridan et al. (U.S. Patent Application No. 10/923,865). In order to expedite allowance of the application, Applicants have enclosed a terminal disclaimer to obviate the rejection. The Examiner has noted this in the previous Office Action. The use of a terminal disclaimer in overcoming a nonstatutory double patenting rejection is in the public interest because it encourages the disclosure of additional developments, the earlier filing of applications, and the earlier expiration of patents whereby the inventions covered become freely available to the public. *In re Jentoft*, 392 F.2d 633, 157 USPQ 363 (CCPA 1968); *In re Eckel*, 393 F.2d 848, 157 USPQ 415 (CCPA 1968); and *In re Braithwaite*, 379 F.2d 594, 154 USPQ 29 (CCPA 1967).

The Examiner rejected claims 1-8 and 10-21 under 35 U.S.C. § 103(a) as obvious over Danen et al. (U.S. Patent No. 5,266,132; "Danen"). Independent claims 1, 18 and 21 have been amended to clarify that the invention employs non-adducted metal hydrides in layers and that the layers in combination are have a thickness of less than or equal to approximately 10 nm (page 2, lines 6 and 7 of the original application). Danen's layers or "most inventive composites will utilize reactive substance layers having thicknesses in the range of from about 100 Å to about 2000 Å" (see Col. 3 lines 5-14). Danen therefore does not suggest, teach or provide motivation for Applicant's invention. Accordingly, claims 1, 18, and 21 are patentable over Danen.

Applicant respectfully reiterates information included in the response to the prior Advisory

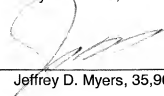
Action (dated January 23, 2007) that Applicant's invention as claimed teaches how to generate an energetic material composition that produces hydrogen gas as a reaction product by the inclusion of metal hydride reactants, utilizing metal hydrides and/or metals with hydrogen interstitials. Danen does not disclose a true hydride, but rather only a hydride combined with another compound to form an adduct. Hydrides and metals with interstitial hydrogen are fundamentally different than what is described in Danen. The Examiner states that "Danen teaches that the reacting materials may include aluminum, titanium, magnesium, lithium and hydrides thereof," but again the only reference to metal hydrides in Danen is the mention of an $\text{AlH}_3 \cdot \text{N}(\text{CH}_3)_3$ organometallic adduct (col. 5, lines 9-44). An adduct, as known in the art, is a combination of two or more independently stable compounds. Accordingly, Danen actually teaches away from the use of non-adducted metal hydrides or metals with interstitial hydrogen. Therefore, Danen does not suggest but rather teaches away from Applicant's invention.

Because claims 3-8 and 10-17 are dependent on patentable independent claim 1, and claims 19-20 are dependent on patentable independent claim 18, all the claims are now in condition for allowance.

An earnest attempt has been made to respond to each and every ground of rejection advanced by the Examiner. However, should the Examiner have any queries, suggestions or comments relating to a speedy disposition of the application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Dated: 8/17/07

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